

# DBMS LAB ASSIGNMENT

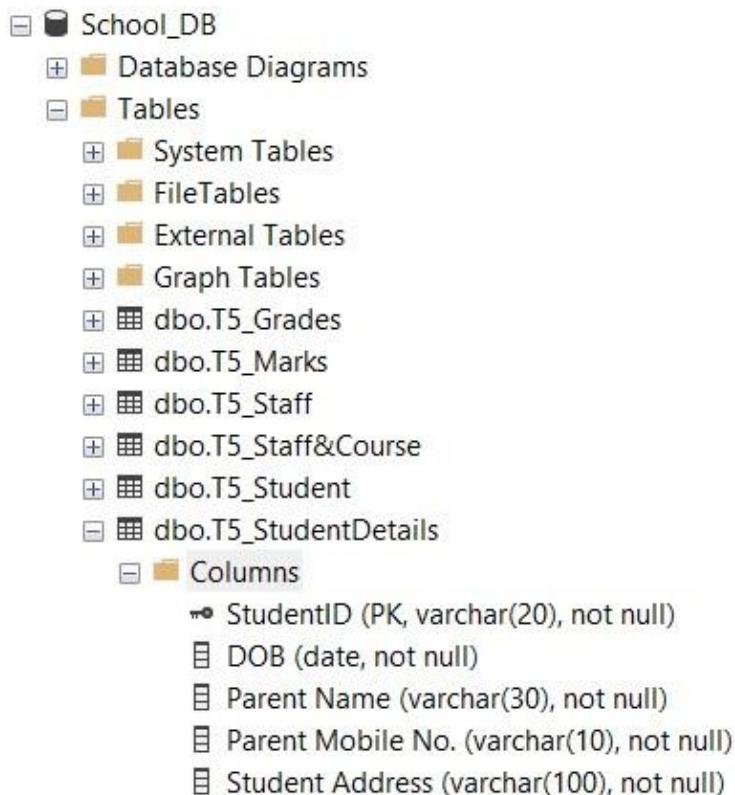
P.Goutam

\19BCS085

1) Add, Modify and Delete Column using Alter Command.

## 7 Adding column:

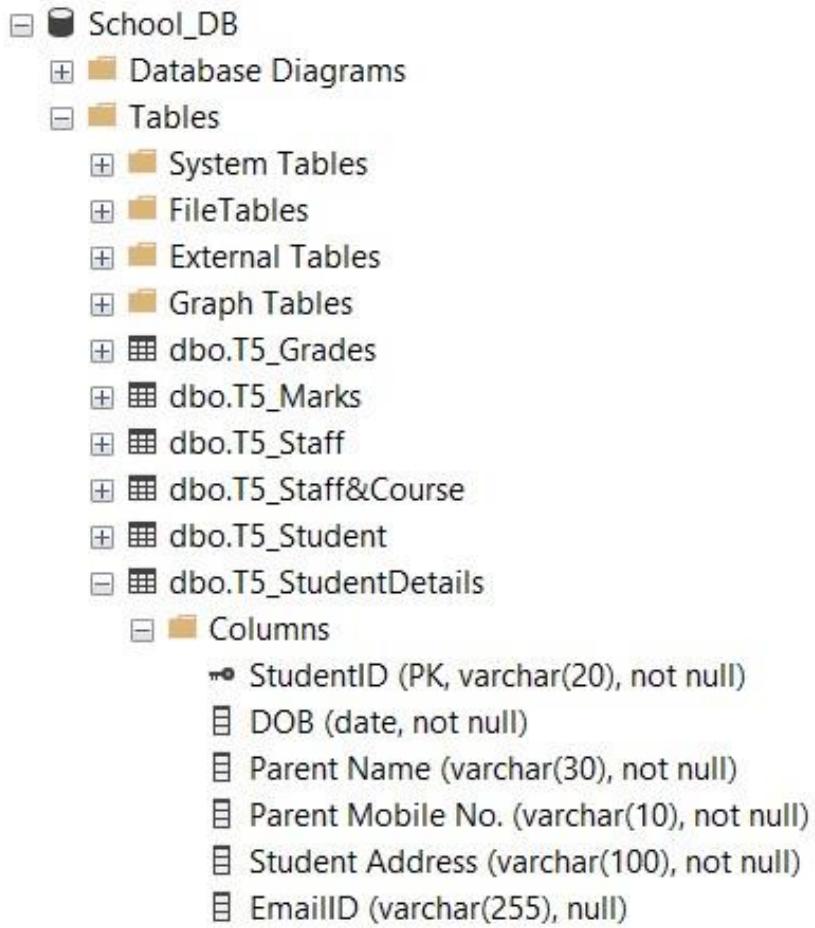
Before adding column(EmailID):



Query:

```
USE School_DB;
ALTER TABLE T5_StudentDetails
ADD EmailID Varchar(255);
```

OUTPUT:

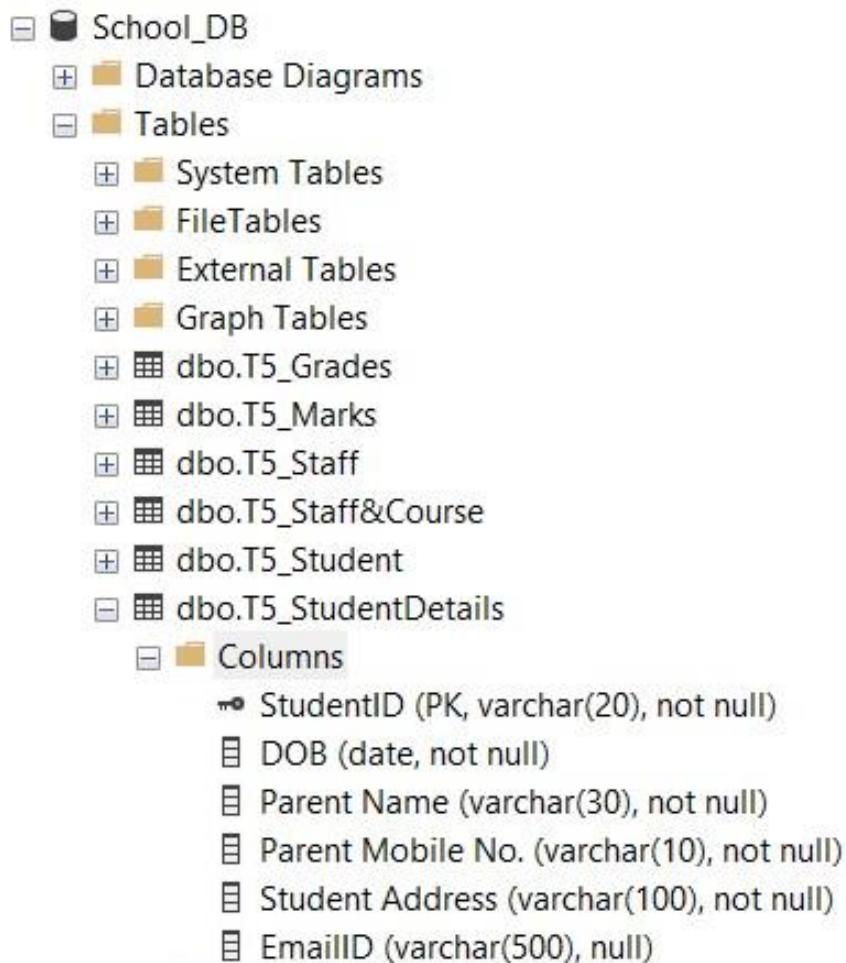


## 7 Modifying column:

Query:

```
USE School_DB;
ALTER TABLE T5_StudentDetails ALTER
COLUMN EmailID varchar(500);
```

OUTPUT:

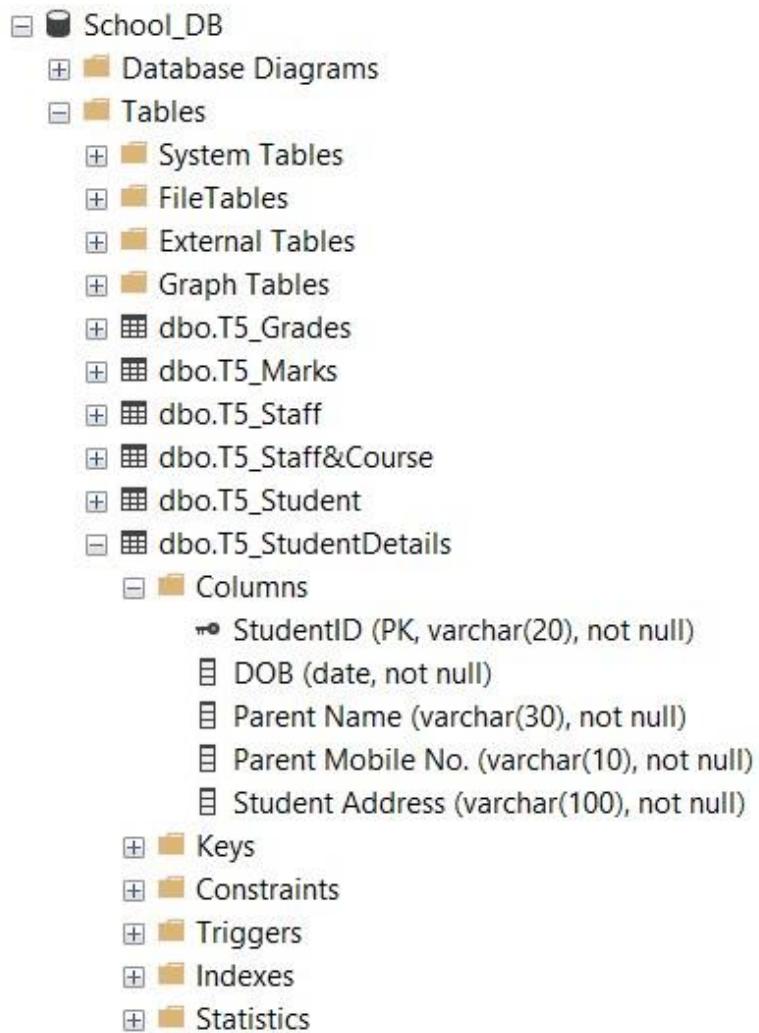


## 7 Deleting column:

Query:

```
USE School_DB;
ALTER TABLE T5_StudentDetails DROP
COLUMN EmailID;
```

OUTPUT:



2) Insert 20 Employees Data into all the tables. Use all the 3 methods that I have showcased.

Query:

```

INSERT INTO T5_StudentDetails(StudentID,DOB,[Parent Name],[Parent Mobile No.],[Student Address])
VALUES('19BCS180','2000-03-12','PAUL','9087611121','KERALA');
INSERT INTO T5_StudentDetails
VALUES('19BCS181','2000-12-12','RAJ','9764210472','AP');
INSERT INTO T5_StudentDetails(StudentID,DOB,[Parent Name],[Parent Mobile No.],[Student Address])
(SELECT StudentID,DOB,[Parent Name],[Parent Mobile No.],[Student Address] FROM School_DB.dbo.T5_STD_details WHERE [Student Address]='AP');
INSERT INTO T5_StudentDetails(StudentID,DOB,[Parent Name],[Parent Mobile No.],[Student Address])
VALUES('19BCS182','2000-02-17','BELL','8907432713','MUMBAI');
INSERT INTO T5_StudentDetails
VALUES('19BCS183','2000-10-23','ABHIRAM','7629672355','AP');
INSERT INTO T5_StudentDetails(StudentID,DOB,[Parent Name],[Parent Mobile No.],[Student Address])
VALUES('19BCS184','2001-03-21','SAMEER','9034218745','TELANGANA');
INSERT INTO T5_StudentDetails
VALUES('19BCS185','2000-04-09','COUP','7093218988','TAMILNADU');
INSERT INTO T5_StudentDetails(StudentID,DOB,[Parent Name],[Parent Mobile No.],[Student Address])
VALUES('19BCS186','2000-05-12','RAM','9456723444','AP');
INSERT INTO T5_StudentDetails
VALUES('19BCS187','2001-03-02','JAGADISH','9056332187','TELANGANA');
INSERT INTO T5_StudentDetails(StudentID,DOB,[Parent Name],[Parent Mobile No.],[Student Address])
VALUES('19BCS188','2002-08-14','JOHN','5903421786','AP');
INSERT INTO T5_StudentDetails
VALUES('19BCS189','2002-03-10','KRISHNA','9045117997','TELANGANA');
INSERT INTO T5_StudentDetails(StudentID,DOB,[Parent Name],[Parent Mobile No.],[Student Address])
VALUES('19BCS190','2001-11-22','JACK','9876504441','KERALA');
INSERT INTO T5_StudentDetails
VALUES('19BCS191','2000-06-07','JENNIFER','8065554388','GUJARAT');
INSERT INTO T5_StudentDetails(StudentID,DOB,[Parent Name],[Parent Mobile No.],[Student Address])
VALUES('19BCS192','2000-03-12','SEKHAR','7999065432','AP');
INSERT INTO T5_StudentDetails
VALUES('19BCS193','2000-03-12','SREE RAM','9045321238','TELANGANA');
INSERT INTO T5_StudentDetails(StudentID,DOB,[Parent Name],[Parent Mobile No.],[Student Address])
VALUES('19BCS194','2000-03-12','JAI','1298765430','AP');
INSERT INTO T5_StudentDetails
VALUES('19BCS195','2000-03-12','ARJUN','9876543210','AP');
SELECT * FROM T5_StudentDetails;

```

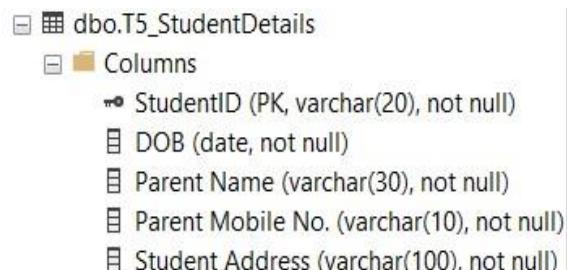
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## OUTPUT:

	StudentID	DOB	Parent Name	Parent Mobile No.	Student Address
1	19BCS141	2000-11-10	HARISH	9984322804	AP
2	19BCS144	2000-12-19	NARENDRA	7984439102	AP
3	19BCS146	2000-01-20	RAM	9773290135	AP
4	19BCS148	2000-02-12	RAGHUVARAN	8832194339	AP
5	19BCS180	2000-03-12	PAUL	9087611121	KERALA
6	19BCS181	2000-12-12	RAJ	9764210472	AP
7	19BCS182	2000-02-17	BELL	8907432713	MUMBAI
8	19BCS183	2000-10-23	ABHIRAM	7629672355	AP
9	19BCS184	2001-03-21	SAMEER	9034218745	TELANGANA
10	19BCS185	2000-04-09	COUP	7093218988	TAMILNADU
11	19BCS186	2000-05-12	RAM	9456723444	AP
12	19BCS187	2001-03-02	JAGADISH	9056332187	TELANGANA
13	19BCS188	2002-08-14	JOHN	5903421786	AP
14	19BCS189	2002-03-10	KRISHNA	9045117997	TELANGANA
15	19BCS190	2001-11-22	JACK	9876504441	KERALA
16	19BCS191	2000-06-07	JENNIFER	8065554388	GUJARAT
17	19BCS192	2000-03-12	SEKHAR	7999065432	AP
18	19BCS193	2000-03-12	SREE RAM	9045321238	TELANGANA
19	19BCS194	2000-03-12	JAI	1298765430	AP
20	19BCS195	2000-03-12	ARJUN	9876543210	AP

## 2) Show Violation of Primary Key, Unique Not Null and default key constraints through insertion.

### ⑦ Violation of Primary key constraint:



In Table **T5\_StudentDetails**, **StudentID** is primary key. Query:

`USE School_DB`

`INSERT INTO T5_StudentDetails([StudentID],[DOB],[Parent Name],[Parent Mobile No.],[Student Address])`

`VALUES ('19BCS123','2002-03-21','Venkateswarlu','9876543210','AP');`

```

USE School_DB
INSERT INTO T5_StudentDetails([StudentID],[DOB],[Parent Name],[Parent Mobile No.],[Student Address])
/*VALUES ('19BCS123','2002-03-21','Venkateswarlu','9876543210','AP');*/
VALUES ('19BCS123','2002-03-21','Venkateswarlu','1234567890','AP');

```

## OUTPUT:

```

USE School_DB
INSERT INTO T5_StudentDetails([StudentID],[DOB],[Parent Name],[Parent Mobile No.],[Student Address])
VALUES ('19BCS123','2002-03-21','Venkateswarlu','9876543210','AP');

(1 row affected)

Completion time: 2021-02-19T11:36:03.2540788+05:30

```

```

USE School_DB
INSERT INTO T5_StudentDetails([StudentID],[DOB],[Parent Name],[Parent Mobile No.],[Student Address])
/*VALUES ('19BCS123','2002-03-21','Venkateswarlu','9876543210','AP');*/
VALUES ('19BCS123','2002-03-21','Venkateswarlu','1234567890','AP');

Msg 2627, Level 14, State 1, Line 2
Violation of PRIMARY KEY constraint 'PK_T5_StudentDetails'. Cannot insert duplicate key in object 'dbo.T5_StudentDetails'. The duplicate key value is (19BCS123).
The statement has been terminated.

Completion time: 2021-02-19T11:41:42.0685350+05:30

```

## 7 Violation of Unique key constraint:

In Table **T5\_StudentDetails**, I have converted **Parent Mobile No.** key into unique by using the following query:

```

ALTER TABLE T5_StudentDetails ADD
UNIQUE ([Parent Mobile No.]);

```

## Query:

```

USE School_DB
INSERT INTO T5_StudentDetails([StudentID],[DOB],[Parent Name],[Parent Mobile No.],[Student Address])
VALUES ('19BCS130','2002-03-01','Prasad','1234567890','TamilNadu');

```

```

USE School_DB
INSERT INTO T5_StudentDetails([StudentID],[DOB],[Parent Name],[Parent Mobile No.],[Student Address])

```

```
/*VALUES ('19BCS130','2002-03-01','Prasad','1234567890','TamilNadu');*/ VALUES  
('19BCS123','2002-03-21','Venkateswarlu','1234567890','AP');
```

## OUTPUT:

The screenshot shows the SQL Server Management Studio interface. The query window contains the following code:

```
USE School_DB
INSERT INTO T5_StudentDetails([StudentID],[DOB],[Parent Name],[Parent Mobile No.],[Student Address])
VALUES ('19BCS130','2002-03-01','Prasad','1234567890','TamilNadu');
```

The status bar at the bottom indicates "Completion time: 2021-02-19T14:41:19.0008887+05:30".

The screenshot shows the SQL Server Management Studio interface. The query window contains the following code:

```
USE School_DB
INSERT INTO T5_StudentDetails([StudentID],[DOB],[Parent Name],[Parent Mobile No.],[Student Address])
/*VALUES ('19BCS130','2002-03-01','Prasad','1234567890','TamilNadu');*/
VALUES ('19BCS123','2002-03-21','Venkateswarlu','1234567890','AP');
```

The status bar at the bottom indicates "Completion time: 2021-02-19T14:45:08.2017483+05:30".

Messages pane output:

```
Msg 2627, Level 14, State 1, Line 2
Violation of UNIQUE KEY constraint 'UQ__T5_Stude__906902966BF83FE5'. Cannot insert duplicate key in object 'dbo.T5_StudentDetails'. The duplicate key value is (1234567890).
The statement has been terminated.
```

## 7 Violation of NOT NULL constraint:

### Query:

```
INSERT INTO T5_Marks([StudentID],[CourseID],[CourseMarks])
VALUES('19BCS123',NULL,'80');
```

## OUTPUT:

The screenshot shows the SQL Server Management Studio interface. The query window contains the following code:

```
/*Violation of NOT NULL constraint*/
INSERT INTO T5_Marks([StudentID],[CourseID],[CourseMarks])
VALUES('19BCS123',NULL,'80');
```

The status bar at the bottom indicates "Completion time: 2021-02-19T14:59:06.3326961+05:30".

Messages pane output:

```
Msg 515, Level 16, State 2, Line 12
Cannot insert the value NULL into column 'CourseID', table 'School_DB.dbo.T5_Marks'; column does not allow nulls. INSERT fails.
The statement has been terminated.
```

## 7 Violation of default key constraint:

### Query:

```
ALTER TABLE T5_Student
ADD CONSTRAINT df_EmailID
DEFAULT '@iiitdwd.ac.in' FOR EmailID;
```

```
INSERT INTO T5_Student([StudentID],[First Name],[Last
Name],[PH_No],[StudyYear],[CourseID])
VALUES ('19BCS123','Anupama','M','1234567890','2','cs210'); select * from T5_Student;
```

### OUTPUT:

```
ALTER TABLE T5_Student
ADD CONSTRAINT df_EmailID
DEFAULT '@iiitdwd.ac.in' FOR EmailID;

/*Violation of default constraint*/
INSERT INTO T5_Student([StudentID],[First Name],[Last Name],[PH_No],[StudyYear],[CourseID])
VALUES ('19BCS123','Anupama','M','1234567890','2','cs210');
select * from T5_Student;
```

	StudentID	First Name	Last Name	EmailID	PH_No	StudyYear	CourseID
1	19BCS123	Anupama	M	@iiitdwd.ac.in	1234567890	2	cs210

- 4) Insert tuples into the table and see how foreign key constraint works if you try to insert into dependent table first.**

+	dbo.T5_Student
	[+] Columns
	☛ StudentID (PK, FK, varchar(20), not null)
	✉ First Name (varchar(20), not null)
	✉ Last Name (varchar(20), not null)
	✉ EmailID (varchar(50), not null)
	✉ PH_No (varchar(10), not null)
	✉ StudyYear (int, not null)
	☛ CourseID (FK, varchar(20), not null)
	[+] Keys
	[+] Constraints
	[+] Triggers
	[+] Indexes
	[+] Statistics
+	dbo.T5_StudentDetails
+	dbo.T5_studentInfo
	[+] dbo.T5_Subject
	[+] Columns
	☛ CourseID (PK, varchar(20), not null)
	✉ CourseName (varchar(40), not null)
	✉ CourseYear (int, not null)
	☛ StudentID (FK, varchar(20), not null)
	✉ EmailID (varchar(50), not null)
	✉ PH_No (varchar(10), not null)

Here, ***StudentID*** column in ***T5\_Subject*** table is dependent on ***StudentID*** column in ***T5\_Student*** table.

## Query:

```
USE School_DB  
INSERT INTO  
T5_Subject([CourseID],[CourseName],[CourseYear],[StudentID],[EmailID],[PH_No]) VALUES  
('CS210','DBMS','2','19bcs123','19bcs123@iiitdwd.ac.in','9876543210');
```

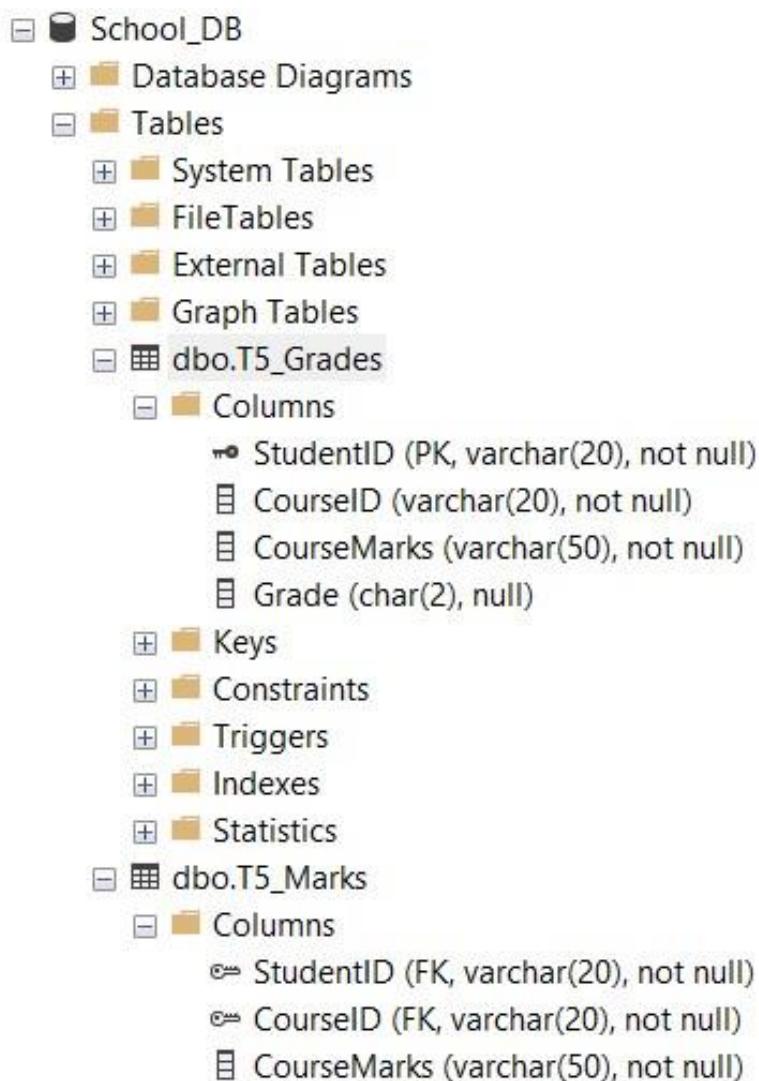
## OUTPUT:

Messages

Msg 547, Level 16, State 0, Line 2  
The INSERT statement conflicted with the FOREIGN KEY constraint "FK\_T5\_Subject\_T5\_Student". The conflict occurred in database "School\_DB", table "dbo.T5\_Student", column 'StudentID'.  
The statement has been terminated.

Completion time: 2021-02-18T23:01:31.1354551+05:30

## 5) Show Violation of Foreign Key Constraint when you try to delete from a base table. If you get an error explain why deletion gives an error.



Here, **StudentID** column in **T5\_Marks** table is dependent on **StudentID** column in **T5\_Grades** table.

Query to delete column:

`USE School_DB`

```
ALTER TABLE T5_Grades
DROP COLUMN StudentID;
```

OUTPUT:

The screenshot shows a SQL query being run in a query editor. The query is:

```
USE School_DB
ALTER TABLE T5_Grades
DROP COLUMN StudentID;
```

The output window displays several error messages in red text:

Msg 5074, Level 16, State 1, Line 16  
The object 'PK\_T5\_Grades' is dependent on column 'StudentID'.  
Msg 5074, Level 16, State 1, Line 16  
The object 'FK\_T5\_Marks\_T5\_Grades' is dependent on column 'StudentID'.  
Msg 4922, Level 16, State 9, Line 16  
ALTER TABLE DROP COLUMN StudentID failed because one or more objects access this column.

Completion time: 2021-02-19T22:05:21.8771510+05:30

**6) Try to update a non-existing entity data and check for error.**

Query:

```
USE School_DB
UPDATE T5_StudentDetails
SET [Student Address] = 'Telagana'
WHERE StudentID = '19CS200'
```

OUTPUT:

The screenshot shows a SQL query being run in a query editor. The query is:

```
USE School_DB
UPDATE T5_StudentDetails
SET [Student Address] = 'Telagana'
WHERE StudentID = '19BCS200'
```

The output window shows the result of the update:

(0 rows affected)

Completion time: 2021-02-19T22:01:50.9838049+05:30

**7) Add a column which has default value.**

Query:

```
ALTER TABLE T5_Student
ADD CONSTRAINT dft_EmailID
```

```
DEFAULT '@iiitdwd.ac.in' FOR EmailID;
```

```
INSERT INTO T5_Subject(StudentID,CourseID,CourseName,CourseYear,PH_No)
VALUES('19BCS195','CS211','DBMS','2','9876543210'); select
* from T5_Subject;
```

OUTPUT:

```
ALTER TABLE T5_Subject
ADD CONSTRAINT dft_EmailID
DEFAULT '@iiitdwd.ac.in' FOR EmailID;

INSERT INTO T5_Subject(StudentID,CourseID,CourseName,CourseYear,PH_No)
VALUES('19BCS195','CS211','DBMS','2','9876543210');
select * from T5_Subject;
```

100 %

Results Messages

	CourseID	CourseName	CourseYear	StudentID	EmailID	PH_No
1	CS211	DBMS	2	19BCS195	@iiitdwd.ac.in	9876543210

**8) 5 Simple Select queries to retrieve data from your database.**

Query:

i)

```
USE School_DB
SELECT StudentID FROM T5_StudentDetails WHERE [Student Address] =
'AP';
```

OUTPUT:

```

USE School_DB
SELECT StudentID FROM T5_StudentDetails
WHERE [Student Address] = 'AP';

```

100 %

Results Messages

	StudentID
1	19BCS141
2	19BCS144
3	19BCS146
4	19BCS148
5	19BCS181
6	19BCS183
7	19BCS186
8	19BCS188
9	19BCS192
10	19BCS194
11	19BCS195

ii)

`SELECT TOP 10 * FROM T5_StudentDetails;`

OUTPUT:

```

SELECT TOP 10 * FROM T5_StudentDetails;

```

100 %

Results Messages

	StudentID	DOB	Parent Name	Parent Mobile No.	Student Address
1	19BCS141	2000-11-10	HARISH	9984322804	AP
2	19BCS144	2000-12-19	NARENDRA	7984439102	AP
3	19BCS146	2000-01-20	RAM	9773290135	AP
4	19BCS148	2000-02-12	RAGHUVARAN	8832194339	AP
5	19BCS180	2000-03-12	PAUL	9087611121	KERALA
6	19BCS181	2000-12-12	RAJ	9764210472	AP
7	19BCS182	2000-02-17	BELL	8907432713	MUMBAI
8	19BCS183	2000-10-23	ABHIRAM	7629672355	AP
9	19BCS184	2001-03-21	SAMEER	9034218745	TELANGANA
10	19BCS185	2000-04-09	COUP	7093218988	TAMILNADU

iii)

`SELECT [Parent Mobile No.] FROM T5_StudentDetails WHERE[Student Address] = 'AP';`

OUTPUT:

```
USE School_DB
SELECT [Parent Mobile No.] FROM T5_StudentDetails
WHERE [Student Address] = 'AP';
```

100 %

Results Messages

	Parent Mobile No.
1	9984322804
2	7984439102
3	9773290135
4	8832194339
5	9764210472
6	7629672355
7	9456723444
8	5903421786
9	7999065432
10	1298765430
11	9876543210

iv)

```
SELECT * FROM T5_StudentDetails;
```

OUTPUT:

SELECT \* FROM T5\_StudentDetails;

100 %

Results Messages

	StudentID	DOB	Parent Name	Parent Mobile No.	Student Address
1	19BCS141	2000-11-10	HARISH	9984322804	AP
2	19BCS144	2000-12-19	NARENDRA	7984439102	AP
3	19BCS146	2000-01-20	RAM	9773290135	AP
4	19BCS148	2000-02-12	RAGHUVARAN	8832194339	AP
5	19BCS180	2000-03-12	PAUL	9087611121	KERALA
6	19BCS181	2000-12-12	RAJ	9764210472	AP
7	19BCS182	2000-02-17	BELL	8907432713	MUMBAI
8	19BCS183	2000-10-23	ABHIRAM	7629672355	AP
9	19BCS184	2001-03-21	SAMEER	9034218745	TELANGANA
10	19BCS185	2000-04-09	COUP	7093218988	TAMILNADU
11	19BCS186	2000-05-12	RAM	9456723444	AP
12	19BCS187	2001-03-02	JAGADISH	9056332187	TELANGANA
13	19BCS188	2002-08-14	JOHN	5903421786	AP
14	19BCS189	2002-03-10	KRISHNA	9045117997	TELANGANA
15	19BCS190	2001-11-22	JACK	9876504441	KERALA
16	19BCS191	2000-06-07	JENNIFER	8065554388	GUJARAT
17	19BCS192	2000-03-12	SEKHAR	7999065432	AP
18	19BCS193	2000-03-12	SREE RAM	9045321238	TELANGANA
19	19BCS194	2000-03-12	JAI	1298765430	AP
20	19BCS195	2000-03-12	ARJUN	9876543210	AP

v)

```
SELECT * FROM T5_StudentDetails
WHERE [Student Address] = 'AP' ORDER BY StudentID;
```

OUTPUT:

```

SELECT * FROM T5_StudentDetails
WHERE [Student Address] = 'AP'
ORDER BY StudentID;

```

100 %

	StudentID	DOB	Parent Name	Parent Mobile No.	Student Address
1	19BCS141	2000-11-10	HARISH	9984322804	AP
2	19BCS144	2000-12-19	NARENDRA	7984439102	AP
3	19BCS146	2000-01-20	RAM	9773290135	AP
4	19BCS148	2000-02-12	RAGHUVARAN	8832194339	AP
5	19BCS181	2000-12-12	RAJ	9764210472	AP
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7	19BCS186	2000-05-12	RAM	9456723444	AP
8	19BCS188	2002-08-14	JOHN	5903421786	AP
9	19BCS192	2000-03-12	SEKHAR	7999065432	AP
10	19BCS194	2000-03-12	JAI	1298765430	AP
11	19BCS195	2000-03-12	ARJUN	9876543210	AP

**9) Show how Foreign key constraint effects Updating a dependent table when value is not existing and in Base table where the value is referred and you want to update it.**

Query:

```

UPDATE T5_Subject
SET StudentID='19BCS200'/*exist in both tables T5_StudentDetails And T5_Subject*/
WHERE CourseName='DBMS';/*exists only in T5_Subject(Child table)*/

```

OUTPUT:

```
UPDATE T5_Subject
SET StudentID='19BCS200' /*exist in both tables T5_StudentDetails And T5_Subject*/
WHERE CourseName='DBMS'; /*exists only in T5_Subject(Child table)*/
```

100 %

### Messages

Msg 647, Level 16, State 0, Line 49

The UPDATE statement conflicted with the FOREIGN KEY constraint "FK\_T5\_Subject\_T5\_StudentDetails". The conflict occurred in database "School\_DB", table "dbo.T5\_StudentDetails", column 'StudentID'.  
The statement has been terminated.

Completion time: 2021-02-20T00:21:14.1038475+05:30